Amendments to the Claims:

The following Listing of Claims replaces all prior listings, and versions, of claims in the present application.

Listing of Claims

1-23 (Canceled)

24. (Currently amended) A method of qualitatively evaluating a digital audio signal, comprising:

calculating, using a measuring system, in real time, in continuous time, and in successive time windows, a quality indicator ~~vector~~, wherein:

said quality indicator ~~vector~~ is obtained from said digital audio signal that represents an analog audio signal,

said quality indicator ~~vector comprises a vector~~ is associated with each of said time windows, and

said quality indicator comprises a number of elements which is ~~vector has a dimension~~ at least one hundred times less than the number of audio samples in a time window, said ~~dimension~~ number being from 1 to 10; and

~~qualitatively evaluating said digital audio signal on the basis of said quality indicator vector~~

directly estimating quality of said digital audio signal as a function of said quality indicator.

25. (Withdrawn) A method according to claim 24, wherein the generation of a quality indicator vector employs the following steps for a reference audio signal and for the audio signal to be evaluated:

a) calculating for each time window the spectral power density of the audio signal

and applying to it a filter representative of the attenuation of the inner and middle ear to obtain a filtered spectral density,

b) calculating individual excitations from the filtered spectral density using the frequency spreading function of the basilar scale,

c) determining the compressed loudness from said individual excitations using a function modeling the non-linear frequency sensitivity of the ear, to obtain basilar components,

d) separating the basilar components into classes, preferably into three classes, and calculating for each class a number C representing the sum of the frequencies of that class, said vector consisting of said numbers C, and

e) calculating a distance between the vectors of the reference audio signal and the audio signal to be evaluated associated with each time window to evaluate the deterioration of the audio signal.

26. (Withdrawn) A method according to claim 25, wherein the generation of a quality indicator vector for the reference audio signal and for the audio signal to be evaluated employs the following steps:

a) calculating N coefficients of a prediction filter by autoregressive modeling,

b) determining in each time window the maximum of the prediction residue as a difference between the signal predicted with the aid of the prediction filter and the audio signal, said maximum of the prediction residue constituting said quality indicator vector, and

c) calculating a distance between said vectors of the reference audio signal and the audio signal to be evaluated associated with each time window to evaluate the deterioration of the audio signal.

27. (Withdrawn) A method according to claim 24, wherein the generation of a quality indicator vector employs the following steps for the reference audio signal and for the audio signal to be evaluated:

a) calculating for each time window the spectral power density of the audio signal and applying to it a filter representative of the attenuation of the inner and middle ear to obtain a

frequency spreading function in the basilar scale,

b) calculating individual excitations from the frequency spreading function in the basilar scale,

c) obtaining the compressed loudness from said individual excitations using a function modeling the non-linear frequency sensitivity of the ear, to obtain basilar components,

d) calculating N' prediction coefficients of a prediction filter from said basilar components by autoregressive modeling, and

e) generating for each time window a quality indicator vector from only some of the N' prediction coefficients.

28. (Withdrawn) A method according to claim 27, wherein the quality indicator vector comprises from 5 to 10 of said prediction coefficients.

29. (Currently amended) A method according to claim 24, wherein the calculation of said quality indicator ~~vector~~ employs the following steps for at least the digital audio signal to be evaluated:

a) calculating a temporal activity of the digital audio signal in each of said time windows,

b) calculating a sliding average over N_1 successive values of the temporal activity, and

c) retaining a minimum value of M_1 successive values of the sliding average.

30. (Currently amended) A method according to claim 29, wherein said quality indicator ~~vector~~ comprises said minimum value.

31. (Currently amended) A method according to claim 29, wherein said quality indicator ~~vector~~ comprises a binary value that is the result of comparing said minimum value with a given threshold.

32. (Previously presented) A method according to claim 29, including calculating a quality score by determining a cumulative time interval during which said minimum value is below a given threshold S_1 or by determining the number of times per second said minimum value is below a given threshold S'_1 or by determining both said cumulative time interval and the number of times per second.

33. (Currently amended) A method according to claim 29, wherein said minimum values are generated at the same time for a reference audio signal and for the digital audio signal to be evaluated and a quality ~~vector~~ is generated by comparing the corresponding minimum values for the reference audio signal and for the audio signal to be evaluated.

34. (Withdrawn) A method according to claim 24, wherein the generation of a quality indicator vector employs the following steps for at least the audio signal to be evaluated:

a) calculating a temporal activity of the signal in each time window,

b) calculating a sliding average over N2 successive values of the temporal activity,

and

c) retaining the maximum value from M2 successive values of the sliding average.

35. (Withdrawn) A method according to claim 34, wherein said quality indicator vector consists of said maximum value.

36. (Withdrawn) A method according to claim 34, wherein said quality indicator vector consists of a binary value resulting from comparing said maximum value with a given threshold S_2.

37. (Withdrawn) A method according to claim 34, wherein a deterioration indicator vector is generated by comparing the maximum value obtained for the reference audio signal and the corresponding maximum value obtained for the audio signal to be evaluated.

38. (Withdrawn) A method according to claim 24, wherein the generation of a quality indicator vector calculates, at least for the audio signal to be evaluated, the Fourier transform in successive blocks of N_3 samples constituting said time windows and the minimum value of the spectrum in M_3 successive blocks, said minimum value of the spectrum constituting a quality indicator vector.

39. (Withdrawn) A method according to claim 38, including a step of evaluating the introduction of noise into the audio signal to be evaluated by comparing the value of said minimum value of the spectrum in M_3 successive blocks associated with the audio signal transmitted and the maximum value of the M_3 minima obtained in the same M_3 successive blocks associated with the reference audio signal.

40. (Withdrawn) A method according to claim 38, including a step of evaluating the introduction of noise into the audio signal to be evaluated by comparing the value of said minimum of the spectrum in M_3 successive blocks with an average value of the minima of the spectrum obtained in blocks anterior to said M_3 successive blocks.

41. (Withdrawn) A method according to claim 24, including calculating, at least for the audio signal to be evaluated, a quality indicator vector consisting of a spectrum flattening parameter that is the ratio between an arithmetical mean and a geometrical mean of the components of the spectrum of the signal.

42. (Withdrawn) A method according to claim 41, including using an indicator of detection of deterioration of the audio signal by the introduction of wideband noise by comparing said spectrum flattening parameter between the reference audio signal and the audio signal to be evaluated.

43. (Previously presented) A method according to claim 24, wherein the digital audio signal to be evaluated is an audio signal transmitted digitally.

44. (Previously presented) A method according to claim 24, wherein the digital audio signal has had digital coding applied.

45. (Previously presented) A method according to claim 44, wherein said digital coding is bit rate reduction coding.